

S/N Unknown

PATENT

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Leonard Forbes et al. Examiner: Unknown  
Serial No.: Unknown Group Art Unit: Unknown  
Filed: Herewith Docket: 1303.049US2  
Title: HOLLOW CORE PHOTONIC BANDGAP OPTICAL FIBER

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**INFORMATION DISCLOSURE STATEMENT**

Mail Stop Patent Application  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

In compliance with the duty imposed by 37 C.F.R. § 1.56, and in accordance with 37 C.F.R. §§ 1.97 *et. seq.*, the enclosed materials are brought to the attention of the Examiner for consideration in connection with the above-identified patent application. Applicants respectfully request that this Information Disclosure Statement be entered and the documents listed on the attached Form 1449 be considered by the Examiner and made of record. Pursuant to the provisions of MPEP 609, Applicants request that a copy of the 1449 form, initialed as being considered by the Examiner, be returned to the Applicants with the next official communication.

Pursuant to 37 C.F.R. §1.97(b), it is believed that no fee or statement is required with the Information Disclosure Statement.

Pursuant to 37 C.F.R. §1.98(d), copies of the listed documents are not provided as these references were previously cited by or submitted to the U.S. Patent Office in connection with Applicants' prior U.S. application, Serial No. 10/099044, filed on March 13, 2002, which is relied upon for an earlier filing date under 35 U.S.C. §120.

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Page 2  
Dkt: 1303.049US2

The Examiner is invited to contact the Applicants' Representative at the below-listed telephone number if there are any questions regarding this communication.

Respectfully submitted,

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>		<i>Complete if Known</i>	
		<b>Application Number</b>	Unknown
		<b>Filing Date</b>	Even Date Herewith
		<b>First Named Inventor</b>	Forbes, Leonard
		<b>Group Art Unit</b>	Unknown
		<b>Examiner Name</b>	Unknown
Sheet 1 of 3		Attorney Docket No: 1303.049US2	

### US PATENT DOCUMENTS

Examiner Initial *	USP Document Number	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	Filing Date If Appropriate
	US-1,628,417	05/10/1927	Miller, Levi B.	65	68	11/24/2025
	US-5,734,773	03/31/1998	Teshima, Shinichi, et al.	385	126	04/27/1995
	US-5,815,627	09/29/1998	Harrington, James A.	385	125	08/08/1996
	US-5,827,346	10/27/1998	Kopylov, Nonna, et al.	65	384	01/31/1996
	US-6,090,636	07/18/2000	Geusic, Joseph E., et al.	438	31	02/26/1998
	US-6,141,476	10/31/2000	Matsuura, Yuji, et al.	385	125	01/05/1998
	US-6,150,188	11/21/2000	Geusic, J.E., et al.	438	31	02/26/1998
	US-6,334,019	12/25/2001	Birks, T.A., et al.	385	125	12/17/1999

### FOREIGN PATENT DOCUMENTS

Examiner Initials*	Foreign Document No	Publication Date	Name of Patentee or Applicant of cited Document	Class	Subclass	T <sup>2</sup>

### OTHER DOCUMENTS -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		AGIO, M., et al., "Complete photonic band gap in a two-dimensional chessboard lattice", <u>Physical Review B (Condensed Matter)</u> , 61(3), (June 15, 2000), pp. 15519-22	
		ALFIMOV, M.V., "Photonic crystal fibers with a photonic band gap tunable within the range of 930-1030 nm", <u>JETP Letters</u> , 71(12), (2000), pp. 489-492	
		BABA, T., et al., "Fabrication and photoluminescence studies of GaInAsP/InP 2-dimensional photonic crystals", <u>Journal of Applied Physics, Part 1 (Regular Papers &amp; Short Notes)</u> , 35(2B), (February 1996), pp. 1348-52	
		BABA, T., et al., "Possibility of InP-based 2-dimensional photonic crystal: an approach by the anodization method", <u>Japanese Journal of Applied Physics, Part 1 (Regular Papers &amp; Short Notes)</u> , 34(2B), (February 1995), pp. 1405-8	
		BABA, T., et al., "Theoretical calculation of photonic gap in semiconductor 2-dimensional photonic crystals with various shapes of optical atoms", <u>Japanese Journal of Applied Physics, Part 1 (Regular Papers &amp; Short Notes)</u> , 34(8B), (August 1995), pp. 4496-8	
		BARKOU, S.E., et al., "Silica-air photonic crystal fiber design that permits waveguiding by a true photonic bandgap effect", <u>Optics Letters</u> , 24(1), (January 1, 1999), pp. 46-8	
		BIRKS, T.A., et al., "Endlessly single-mode photonic crystal fiber", <u>Optics Letters</u> , 22(3), (July 1, 1997), pp. 961-3	
		BRECHET, F., et al., "Complete analysis of the characteristics of propagation into photonic crystal fibers by the finite element method", <u>Optical Fiber Technology: Materials, Devices and Systems</u> , 6(2), (April 2000), pp. 181-191	

EXAMINER

DATE CONSIDERED

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>		Complete if Known	
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		BROENG, J., et al., "Analysis of air-guiding photonic bandgap fibers", <u>Optics Letters</u> , v 25, n 2, (January 15, 2000), pp. 96-8	
		BROENG, J., et al., "Photonic crystal fibers: a new class of optical waveguides", <u>Optical Fiber Technology: Materials, Devices and Systems</u> , 5(3), (July 1999), pp. 305-30	
		CHAN, Y.S., et al., "Photonic band gaps in two dimensional photonic quasicrystals", <u>Physical Review Letters</u> , 80(5), (February 2, 1998), pp. 956-9	
		CHARLTON, M.D., et al., "Guided mode analysis, and fabrication of a 2-dimensional visible photonic band structure confined within a planar semiconductor waveguide", <u>Materials Science &amp; Engineering B (Solid-State Materials for Advanced Technology)</u> , B49(2), (September 1997), pp. 155-165	
		EGGLETON, B.J., et al., "Cladding-mode-resonances in air-silica microstructure optical fibers", <u>Journal of Lightwave Technology</u> , 18(8), (August 2000), pp. 1084-100	
		FEDOTOV, A.B., et al., "Holey fibers with 0.4-32- mu m-lattice-constant photonic band-gap cladding: fabrication, characterization, and nonlinear-optical measurements", <u>Laser Physics</u> , 11(1), (January 2001), pp. 138-45	
		FERRANDO, A., "Nearly zero ultraflattened dispersion in photonic crystal fibers", <u>Optics Letters</u> , 25(11), (June 1, 2000), pp. 790-2	
		FERRANDO, A., "Single-polarization single-mode intraband guidance in supersquare photonic crystals fibers", <u>Applied Physics Letters</u> , 78(21), (May 21, 2001), pp. 3184-6	
		FOTEINOPOLLOU, S., et al., "In- and out-of-plane propagation of electromagnetic waves in low index contrast two dimensional photonic crystals", <u>Journal of Applied Physics</u> , 89(2), (January 15, 2001), pp. 824-30	
		HANSEN, T P., et al., "Highly birefringent index-guiding photonic crystal fibers", <u>IEEE Photonics Technology Letters</u> , 13(6), (June 2001), pp. 588-90	
		HECHT, J., "Holes in Photonic Crystal Fibers Open New Possibilities", <u>Laser Focus World</u> , 37(5), (May 2001), pp. 207	
		JIN, CHONG-JUN, et al., "A novel two-dimensional photonic crystal", <u>Chinese Physics Letters</u> , 16(1), (1999), pp. 20-2	
		JIN, CHONG-JUN, et al., "Two Dimensional Photonic Band Structure: Triangular Non-Bravais Lattice", <u>Acta Optica Sinica</u> , 17, (1997), pg. 409	
		JONES-BEY, H., "Photonic crystal fiber yields near-IR solitons", <u>Laser Focus World</u> , 36(1), (January 2000), pp. 15-16	
		KNIGHT, J.C., et al., "All-silica single-mode optical fiber with photonic crystal cladding", <u>Optics Letters</u> , 21(19), (October 1, 1996), pp. 1547-9	
		KNIGHT, J.C., et al., "Anomalous dispersion in photonic crystal fiber", <u>IEEE Photonics Technology Letters</u> , 12(7), (July 2000), pp. 807-9	
		KNIGHT, J.C., et al., "Bragg scattering from an obliquely illuminated photonic crystal fiber", <u>Applied Optics</u> , 37(3), (January 20, 1998), pp. 449-52	

EXAMINER

DATE CONSIDERED

Substitute for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> <i>(Use as many sheets as necessary)</i>		<i>Complete if Known</i> <b>Application Number</b> Unknown <b>Filing Date</b> Even Date Herewith <b>First Named Inventor</b> Forbes, Leonard <b>Group Art Unit</b> Unknown <b>Examiner Name</b> Unknown	
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		KNIGHT, J.C., et al., "Large mode area photonic crystal fibre", <u>Electronics Letters</u> , 34(13), (June 25, 1998), pp. 1347-8	
		KNIGHT, J.C., et al., "Photonic crystals as optical fibres-physics and applications", <u>Optical Materials</u> , 11(2-3), (January 1999), pp. 143-51	
		KNIGHT, T.C., "Properties of photonic crystal fiber and the effective index model", <u>Journal of the Optical Society of America A (Optics, Image Science and Vision)</u> , 15(3), (March 1998), pp. 748-52	
		MOGILEVTSOV, D., et al., "Group-velocity dispersion in photonic crystal fibers", <u>Optics Letters</u> , 23(21), (November 1, 1998), pp. 1662-4	
		MONRO, T.M., et al., "Holey optical fibers: An efficient modal model", <u>Journal of Lightwave Technology</u> , 17(6), (June 1999), pp. 1093-102	
		MONRO, T.M., et al., "Modeling large air fraction holey optical fibers", <u>Journal of Lightwave Technology</u> , 18(1), (January 2000), pp. 50-6	
		OPTOELECTRONICS GROUP, UNIVERSITY OF BATH, "Photonic Crystal Fibre", <a href="http://www.bath.ac.uk/physics/groups/pto/pcf.html">http://www.bath.ac.uk/physics/groups/pto/pcf.html</a> , (7/27/01),	
		RANKA, J.K., et al., "Optical properties of high-delta air-silica microstructure optical fibers", <u>Optics Letters</u> , 25(11), (June 1, 2000), pp. 796-8	
		RASTOGI, V., et al., "Propagation characteristics of a segmented cladding fiber", <u>Optics Letters</u> , 26(8), (April 15, 2001), pp. 491-3	
		SANCHEZ-PEREZ, J.V., et al., "Sound attenuation by a two-dimensional array of rigid cylinders", <u>Physical Review Letters</u> , 80(24), (June 15, 1998), pp. 5325-8	
		SCHERER, A., et al., "Photonic crystal cavities and waveguides", <u>Device Research Conference. Conference Digest</u> , (2001), pp. 115-18	
		STEEL, M.T., et al., "Elliptical-hole photonic crystal fibers", <u>Optics Letters</u> , 26(4), (February 15, 2001), pp. 229-31	
		STEEL, M.T., et al., "Symmetry and degeneracy in microstructured optical fibers", <u>Optics Letters</u> , 26(8), (April 15, 2001), pp. 488-90	
		WHEELER, M.D., "Photonic crystal pretends fiber optics breakthrough", <u>Photon Spectra</u> , 32(1), (January 1998), pg. 34	

EXAMINER

DATE CONSIDERED